

Supervising Higher Degree Research Students

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Topics for Discussion



- Research Process
- Role of the supervisor
- Managing Student Expectations
- Important milestones in student progression
- IP Issues
- Team Supervision
- Part time vs Full time students

Possible Problems



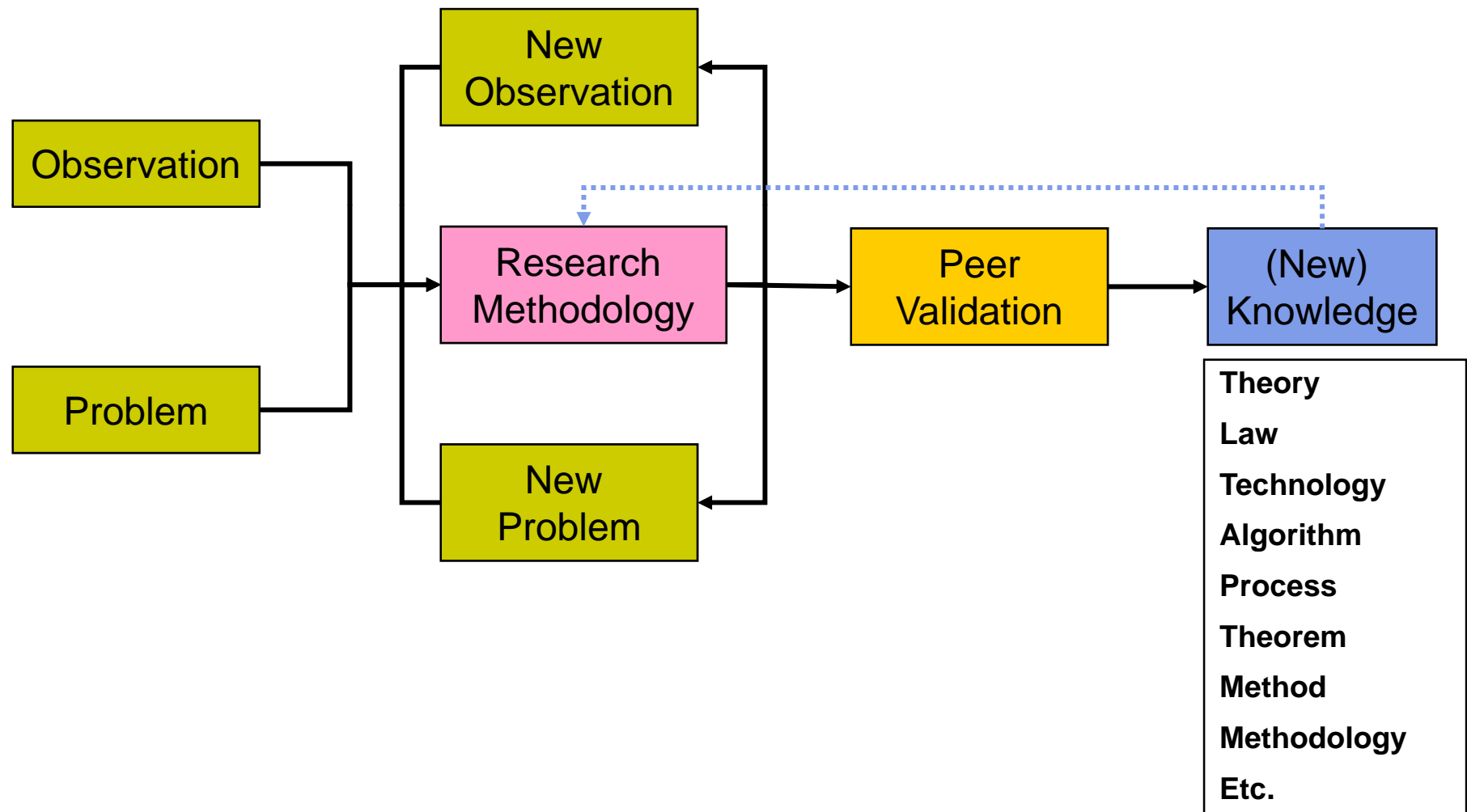
- Lack of a Process
- Research Topic areas

What is Research



- Research encompasses activities that increase the sum of human knowledge [OECD Definition].
- Research is generation of New Knowledge

Process to generate New Knowledge

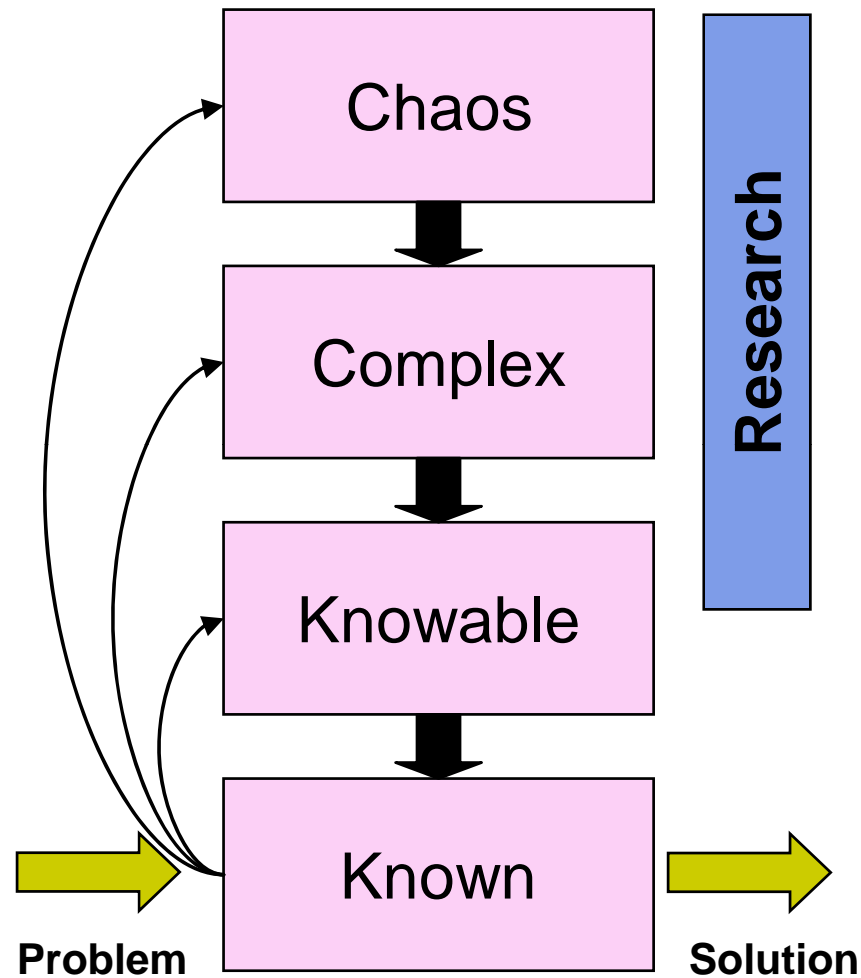


Research Methodology



- Initial literature review to establish that there is no known solution (for a problem) or a scientific explanation (for an observation).
- Establish the significance of solving the problem.
- Formulate a specific Research question
- Formulate a way of solving the problem and assess the feasibility.
- Break the research question into sub questions where appropriate.
- Detail literature review to identify available solutions to the sub questions or available knowledge related to the sub questions.
- **Modifying the research question or sub question if appropriate.**
- Identifying appropriate research methods to solve the sub questions.
- Develop a / Revise Research Plan
- Develop the solutions.
- Justify the appropriateness of the solution to sub questions.
- **Modifying the research question, sub question or research methods if appropriate.**
- **Integrate solutions to sub questions to solve the original research question.** (very important and often students find this difficult)
- **Validate the solution.**
- Identify the wider applications for the new knowledge that was discovered.
- Submit the findings for validation by Peers.

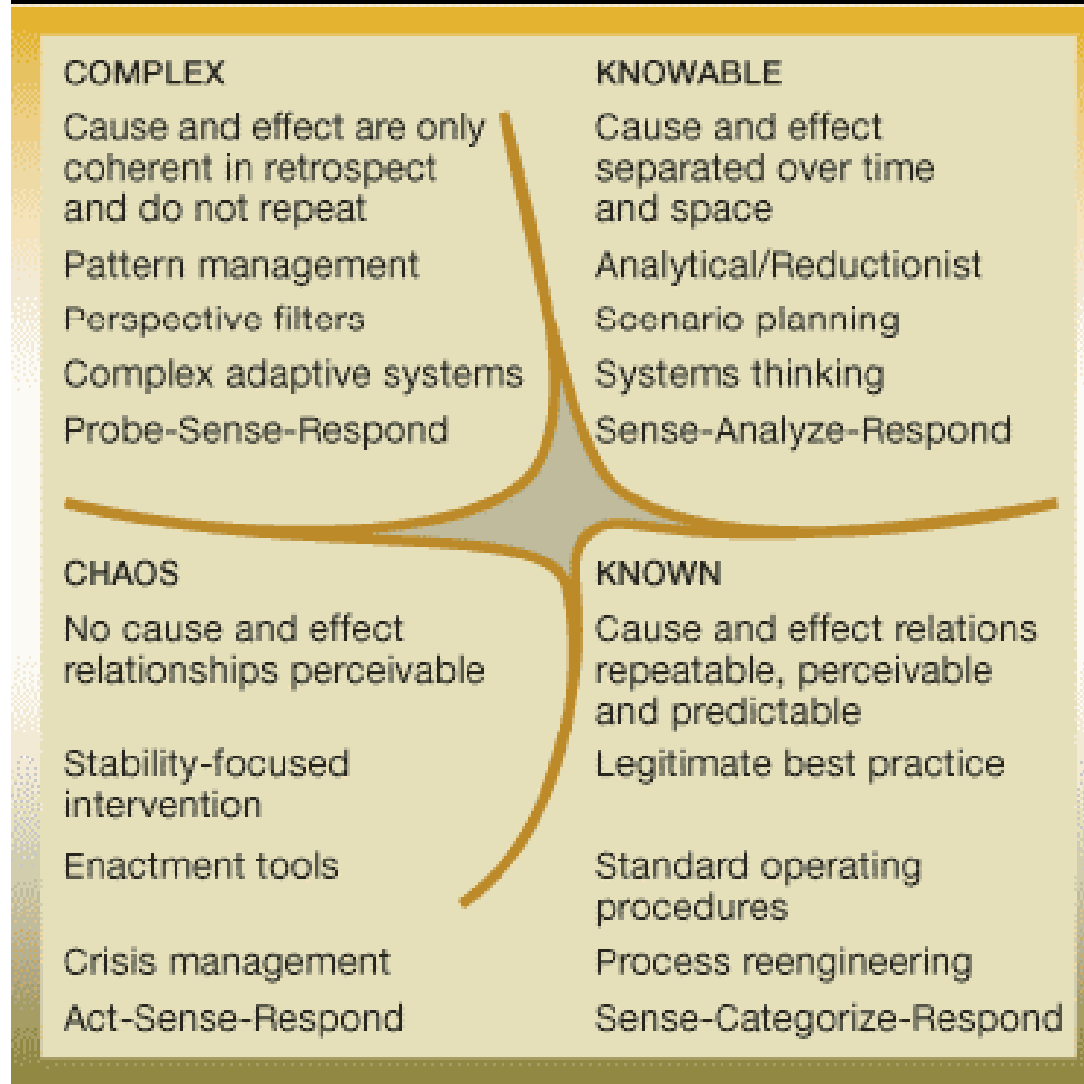
Types of Problems or Tasks



D. Snowden and F. Kurtz, "The new dynamics of strategy: Sense-making in a complex and complicated world", *IBM Systems Journal*, vol: 42, no: 3, 2003, pp. 462-483.

Cynefin Domains

Figure 1 Cynefin domains



What is Research – working Defn. [4]



- Research is a **process** through which we attempt to achieve systematically and with the support of data
 - the answer to a question,
 - the resolution of a problem,
 - or a greater understanding of a phenomenon.
- **This process**, which is frequently called **research methodology**, has eight distinct characteristics:
 - Research originates with a question or problem.
 - Research requires a clear articulation of a goal.
 - Research follows a specific plan or a procedure.
 - Research usually divides the principal problem into more manageable sub-problems.
 - Research is guided by the specific research problem, question, or hypothesis.
 - Research accepts certain critical assumptions.
 - Research requires the collection and interpretation of data in attempting to resolve the problem that initiated the research.
 - Research is, by its nature, cyclical; or more exactly, helical.

Research should be repeatable



- Research is a systematic process that consists of specific activities. – Research Methodology
- It should produce new Knowledge. – Justified True Belief
- If the result is true then every time we conduct the process we should get the same result independent of the people (Community of Practitioners – CoP) performing the process.

Implications



- When reporting research findings we need to describe the process in sufficient details for someone else to conduct the process and validate the findings.
- How do we decide on a suitable research methodology?
- How do we conduct different activities (Research Methods) that form the research methodology?

Role of the Supervisor



- In Higher degree Research the supervisors role is to guide the student through the process.
- The supervisor should provide regular feedback to the student. At early stages (literature review and initial phases of research) feedback will be on both the subject matter and the process. During later stages it is to ensure a proper process is followed, how well the solution fits the original question and whether the correctness of the solution has been properly established.

Managing Student Expectations



“If I know what you are doing then don’t do it”

PhD



- Clause 19.
- A successful Ph.D. student is expected to demonstrate the following Qualification Descriptors (Sri Lankan Credit and Qualification Framework, University Grants Commission)
- (a) The creation and interpretation of new knowledge, through original research or other advanced scholarship, or a quality to satisfy peer review, extend the discipline and merit publication.
- (b) A systematic acquisition and understanding of substantial body of knowledge at a forefront of an academic discipline or areas of professional practice.
- (c) The ability to conceptualise, design and implement a project so as to generate new knowledge, applications or understanding and to adjust the design of the project in response to developments, positive and negative.
- (d) A detailed understanding of applicable techniques for research and advanced academic enquiry.

M.Phil



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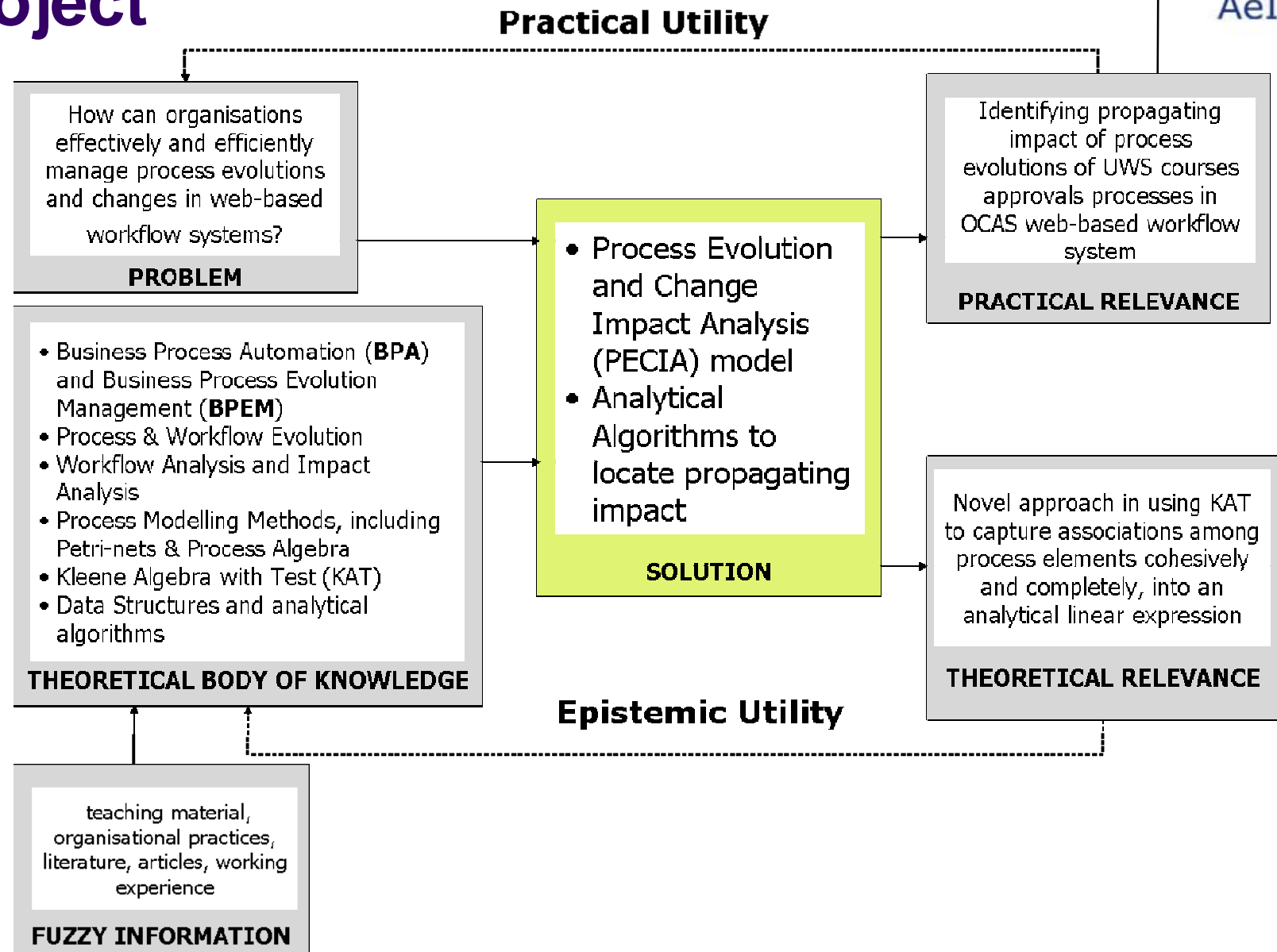
- A successful Mater of Philosophy student should demonstrate the following Qualification Descriptors (Sri Lankan Credit and Qualification Framework, University Grants Commission)
- (a) A thorough and systematic understanding of knowledge, together with a critical awareness of current issues and new insights in his/her subject, informed by scholarly development in his/her academic subject/field or area of professional practice.
- (b) A comprehensive understanding of, and ability to apply, techniques relevant to his/her own research.
- (c) Originality in the application of knowledge and a practical understanding of how research techniques are used to create and interpret knowledge in the subject.
- (d) A range of conceptual understanding that enables them to :
 - i) Evaluate and analyse current research and advanced scholarship in the subject.
 - ii) Constructively criticize and improve methodologies in the subject, and where appropriate, to propose new hypothesis.

Important milestones in student progression



- Identifying a Research area
- Identifying a Research Topic
- Formulating a suitable methodology for investigation.
- Progress review at halfway mark.
- Getting the work peer reviewed through conference and journal publications.
- Establish student is ready to finalise the main message and structure of the thesis
- Thesis Submission

A useful Test at the end of a research project



IP Issues



- Who owns the IP generated through Higher Degree Research?

Team Supervision



- Who should be on the supervisory panel

